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resulting in lower HCC recurrence after LT.To assess the effect of rCMV (before tumoral recurrence) in LT-patients with HCC.
**Method:** We included LT patients with HCC (2018–2020). Exclusion criteria were: late re-LT, early death <1month and combined Liver Kidney transplant. Variables: (i) Donor (D) and recipient (R) demographics, (ii) related with rCMV (defined if CMV viral load >400c/ml): DR CMV mismatch, preemptive therapy, CMV disease, (iii) related to HCC: bridging, downstage, vascular invasion, baseline AFP. Prophylaxis with valganciclovir was used in high-risk patients while a preemptive approach was used in the remainder. The retreat score was used to establish posttransplant follow-up (AFP and Tomography).
**Results:** Out of 266 LT, 122 (83% men, median age 59 yrs) fulfilled inclusion criteria; the main etiology was HCV (31%) followed by alcohol (25%) and the functional Meld was 10 (6–27). Most (80%) were intraMilan at LT; 16 (13%) were included after downstaging and 73% received locoregional therapy either for bridging or downstaging. On explant 11.5% had vascular invasion. Median AFP was 43 (1.1–748 ng/ml). A minority were considered high-risk due to CMV Mismatch (11% D/R ± ). rCMV occurred in 50 patients (41%); 22 (18%) started early treatment and 5 (4%) developed CMV disease. Overall, 10 patients (8.2%) had HCC recurrence after a median of 288 days (Q1, Q3: 135–445). In multivariate analysis, vascular invasion [HR 11 (IC 3–44), p:0, 08] and absence of rCMV were associated with HCC recurrence [HR 0.12 [IC:0.0006–0.25, p:0.004]. Survival at 1, 3 and 5 yrs post-LT was 89%, 82% and 77%, respectively.
**Conclusion:** In our series, vascular invasion, and absence of rCMV were associated with higher risk of HCC recurrence after LT.

## SAT304

### Managing HBV/HDV co-infection post liver transplant-Exploring a decade of experience

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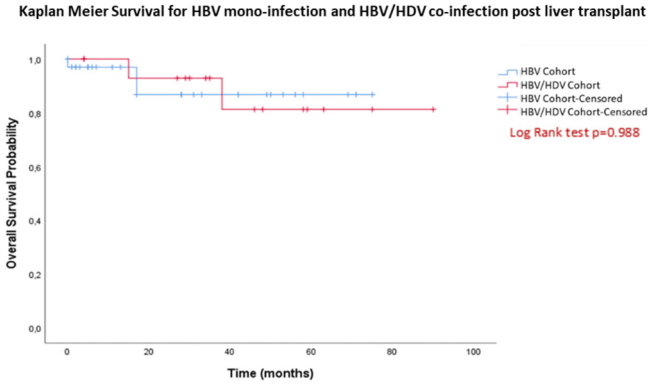
**Background and aims:** Liver transplantation is an important treatment modality for hepatitis B patients with delta co-infection (HBV/HDV), including those with hepatocellular carcinoma (HCC) or decompensated cirrhosis. Despite the judicious use of nucleos (t)ide analogues (NA) and hepatitis B immunoglobulins (HBIG), post-transplant management remains challenging, and there is an inherent risk of viral reactivation and graft failure. We describe ten years of experience in managing this patient cohort and explore their long-term clinical outcomes.
**Method:** In this retrospective study, all patients with HBV/HDV co-infection who underwent liver transplantation at King's College Hospital between 2012 and 2022 were identified. Baseline demographics, date and type of liver transplant, post-surgical management, clinical outcomes, and virological markers (HBV DNA and HDV RNA) pre-, 6- and 12-months post-transplantation were assessed, and Kaplan-Meier's survival curves were generated.
**Results:** Overall, 16 patients underwent liver transplant, including one individual with concomitant HBV, HDV and HIV infection. The median age was 51 years (Range 29–55, IQR 8), and dominant ethnic groups were Caucasian (n = 8, 50%), South Asian and Black African (18.8% each). The most common indication for transplantation was synthetic dysfunction from liver cirrhosis (87.5%). Prior to surgical intervention, 6 patients (37.5%) had detectable HBV DNA levels (Median = 229, Range 71–5.07E3 IU/ml) and 11 individuals (68.8%) had detectable HDV RNA (Median = 2.20E5, Range 1.00E4–3.11E7 IU/ml). In contrast, the vast majority (93.8%) had undetectable HBV DNA and HDV RNA titres at 6- and 12- months post-transplantation. There was also a significant difference in HBsAg levels Pre-transplant, 6- and 12- months post-transplant (p = 0.006). All patients were administered HBIG intra and post-operatively and continued on long-term HBIG and NA. 56% received Tenofovir disoproxil fumarate, 6 individuals (37.5%) were prescribed Entecavir due to underlying renal impairment, and one received tenofovir alafenamide as part of their concurrent HIV treatment. Survival post liver transplant was compared to a control group of HBV mono-infected individuals, the mean survival of HBV/HDV co-infection post liver transplant was 78.6 months, with two fatalities secondary to viral reactivation or transplant-related complications and a mean follow-up of 40.94 months (SD 24.07 months).




**Conclusion:** This study demonstrates that liver transplantation successfully controls HBV/HDV co-infection expression. Whilst NA and HBIG effectively prevent viral reactivation and are associated with favourable long term outcomes; further work is needed to establish a consensus approach across different transplant centres in this patient group.

## SAT305

### Durability of SARS-CoV-2 specific immune response following different primary prime-boost vaccine platforms and subsequent humoral response to booster dose among liver transplant recipients

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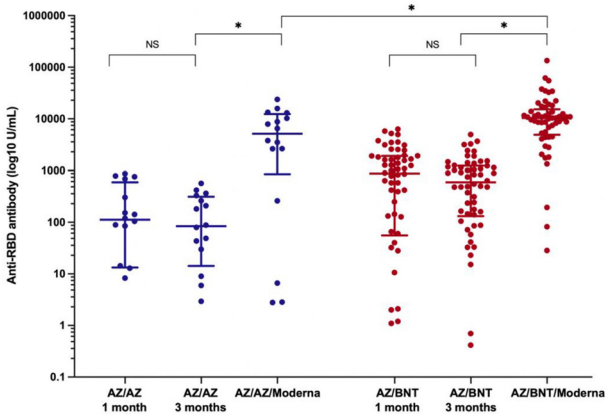
**Background and aims:** Suboptimal immunogenicity among liver transplant (LT) recipients after primary SARS-CoV-2 vaccination has aroused concerns about the longevity of protection and urgent need of a booster dose. There is a paucity of information on antibody kinetics and response following a third dose vaccine in this population. We aimed to investigate the durability of humoral response after primary immunization induced by different prime-boost vaccine platforms and subsequent response to booster dose in LT recipients.
**Method:** LT recipients who were vaccinated with ChAdOx1 nCoV-19 (AZ)/AZ or AZ/BNT162b2 (BNT) as primary vaccine series at King Chulalongkorn Memorial Hospital, Bangkok, Thailand, between April and December 2021 were enrolled. The mRNA-1273 (Moderna) was

administered as the booster vaccine at 3 months following the second dose. SARS-CoV-2 spike receptor-binding-protein (RBD) IgG was assessed at 1 month, 3 months after the second dose, and 1 month following the booster vaccine. Anti-RBD antibody was tested using electrochemiluminescence immunoassay (Roche Elecsys). According to the basis of plasma-neutralizing capacity in patients with convalescent SARS-CoV-2 infection, anti-RBD titer of <0.8 U/ml, 0.8–50 U/ml, and >50 U/ml were defined as negative, low-positive, and high-positive, respectively.

**Results:** Of 74 LT recipients, 51 (68.9%) were male and median age was 61 (IQR 52–68) years. Median time from transplantation was 5.8 (IQR 2.2–10.8) years. Sixty-one (82.4%) patients were taking tacrolimus, 60 (81.1%) anti-metabolite, and 8 (10.8%) steroids. Fifty-eight (78.4%) patients received AZ/BNT as primary vaccine series. Overall, median anti-RBD titers at 1 month after primary immunization were 609.1 (IQR 38.2–1, 632) U/ml and the levels declined to 397.6 (IQR 77.7–1, 098.5) U/ml at 3 months ( p = 0.54). Antibody reduction rate was comparable between two vaccine platforms (32.1% in AZ/AZ versus 43.8% in AZ/BNT, p = 0.25). After the booster dose, median anti-RBD titers significantly rose to 9, 597.0 (IQR 3, 935–13, 497.5) U/ml ( p < 0.001). The proportion of LT patients with high-positive titers significantly increased from 78.4% at 3 months after primary immunization to 98.6% following the third vaccination ( p <0.001). Patients who received heterologous prime-boost regimen as primary vaccine series had significantly greater anti-RBD levels after the booster (10, 346.0 U/ml in AZ/BNT/Moderna group versus 5, 134.0 U/ml in AZ/AZ/Moderna group, p = 0.04). (Figure 1)

**Figure 1: Anti-RBD antibody levels at 1 month, 3 months after primary SARS-CoV-2 vaccination, and 1 month after a booster dose in LT recipients** (Horizontal lines indicate the median and interquartile range; * p-value <0.05; NS, non-significant)




**Conclusion:** SARS-CoV-2 specific antibody among LT recipients waned over time after primary immunization regardless of vaccine platforms. The booster strategy substantially provided high protective antibody titers in almost all LT patients. Further studies evaluating duration of protection after the booster as well as clinical effectiveness against the variants of concerns are warranted.

## SAT306

### Outcome of choledochal cysts with intrahepatic involvement (type IV-A) after extrahepatic cyst excision and roux-en-Y hepaticojejunostomy in adults

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**Background and aims:** Type I and type IV-A choledochal cysts (CC) according to Todani's classification are the most frequent types. Unlike type I CC, in which the dilatation is confined to the extrahepatic bile duct, type IV-A affects both extra and intrahepatic ducts. The aim of this study was to evaluate outcomes in adult patients with type IV-A CC at least 2 years after resection of the extrahepatic bile duct cyst.

**Method:** Data was collected retrospectively from a cohort of 60 adult patients who underwent extrahepatic cyst resection for type IV-A CC from 2010 to 2020 in our institution. A total of 45 patients were included in the final analysis, with a minimum follow-up of two years

**Results:** Follow-up time ranged from 2 years to 10 years (median, 25 months). Thirty five patients remained asymptomatic; however, 5 patients had abnormal liver function tests (LFTs), requiring regular monitoring. Late complications in varying combinations were seen in 10 patients (16.6%), which included cholangitis and/or intrahepatic-hepatic stones in 9 (15%), intrahepatic bile duct stenosis with stones in 2, anastomotic stricture with or without stone formation in 6, and left lobar atrophy with intrahepatic stones in 3 patients.

Magnetic resonance cholangiopancreatography and/or Computed tomography scans was done to evaluate the causes of stricture which revealed anastomotic stricture in 6 patients and web like stenosis of the left intrahepatic bile duct in 2 patients. Percutaneous transhepatic biliary dilatation was done in 2 patients with anastomotic stricture without cystolithiasis. Re-do hepaticojejunostomy (HJ) required in the remaining 4 patients. The stenotic bile duct was incised and hepaticojejunostomy was performed in both patients with left intrahepatic web. The median time interval from primary surgery to reintervention was 24 months. The median follow-up period after reoperation was 5 years.

Out of 6 patients who required re-do HJ, three patients had left lobe atrophy with patent HJ anastomosis with recurrent attack of cholangitis on follow-up of 3, 8 and 10 years respectively. Two of them underwent left hepatectomy and refashioning of anastomosis and other was kept on conservative management.

**Conclusion:** Residual intrahepatic dilatation of type IV-A cyst in adults did adversely affect the postoperative outcome after a conventional surgical repair. A long term follow-up is necessary to recognize and address late complications.

## SAT307

### The impact of COVID-19 on the duration of the liver transplant process in patients presenting for inpatient liver transplant evaluation

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**Background and aims**: The SARS-CoV-2 pandemic (COVID-19) adversely affected liver transplantation internationally. At its peak, COVID-19 was associated with decreased transplant rates and increased waitlist mortality. Though many centres have resumed normal transplant activities, there is concern that reduction in health care services may mean patients present later in their disease course resulting in need for more urgent transplant evaluations. We aimed to evaluate differences in the inpatient liver transplant process before and after the COVID-19 pandemic to understand the impacts on the overall transplant care pathway.

**Method**: Medical records for all patients undergoing liver transplant evaluation (LTE) from 10/2017–8/2021 were reviewed. Patients undergoing LTE for chronic liver disease (CLD) were included; patients with a history of liver transplant or in fulminant liver failure were excluded. Records were categorized as Pre-COVID if evaluation was before 3/15/2020 and post-COVID if after 3/15/2020. Demographic and clinical history were collected for patients undergoing inpatient LTE. Variables were compared using Fishers exact test and students t-tests; significance was evaluated at p = .05.